Math 4c. Homework 18.

1. Solve the following equations, mark the answers on a number line, find the coordinate of the midpoint of the segment.
   Example:
   $|x-3|=7$
   $x-3=7$ $\qquad$ $x-3=-7$
   $x=7+3=10$ $\qquad$ $x=-7+3=-4$

   Coordinate of midpoint is 3.

   a. $|a-4|=1$;
   b. $|b-2|=3$;
   c. $|c+1|=2$;
   d. $|d+3|=4$;

2. Compute:

   $a.\ \dfrac{2-\dfrac{1}{\dfrac{1}{2}+\dfrac{1}{4}}}{2+\dfrac{1}{\dfrac{1}{2}+\dfrac{1}{4}}}$ $\qquad$ $b.\ 1-\dfrac{1}{1+\dfrac{1}{2}}$; $\qquad$ $c.\ 1+\dfrac{1}{1+\dfrac{1}{1+\dfrac{1}{2}}}$

   $d.\ 3-\dfrac{3}{3-\dfrac{1}{1-\dfrac{1}{3}}}$;

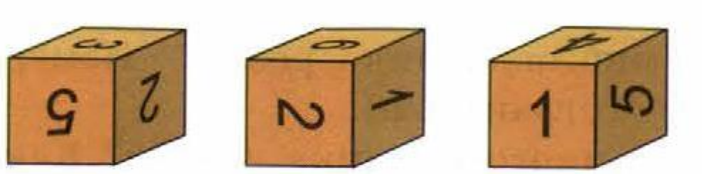
3. In the first box there are twice as many pencils as in the second. Mary took 5 pencils from the first box and put 3 pencils in the second. After that, the number of pencils in both boxes became equal. How many pencils was in each box at the beginning?

4. On a grid (graph) paper draw the coordinate system. Mark the points A(0;2), B(2;6), C(8;8), D(6,4). Draw the quadrilateral. Find the coordinate of the intersection of the diagonals. Use ruler! Try to be accurate!

5. ABCD is a rectangle. Find the coordinates of point D and draw the rectangle on a graph paper.

    a. A(-9; 2), B(-9; 4), C(-3; 4)
    b. A(0; 6), B(0; -2), C(5, -2)
    c. A(9; 0), B(9, -5), C(2, -5)
    d. A(-6; 0), B(-6;-7), C(0; -7)

6. On each side of the cube, digits from 1 to 6 are drawn. Three positions of the cube are shown on the picture.



    What is the digit on the bottom of the cube in each case?

7. There are 48 pencils of each color: blue, yellow and green pencils, 72 red pencils and 120 coloring pictures. How many identical coloring sets can be created out of these pencils and pictures?

8. Write all value for m (m is a natural number) for which the following fractions will be improper fractions:

$$a)\frac{11}{5+m};\qquad b)\frac{25}{4m};\qquad c)\frac{4}{m-8};\qquad d)\frac{5}{10-m}$$

9. If we did that problem in class do not it!. Compute:

$$1)\ \frac{1}{2}\cdot\frac{2}{3}\cdot\frac{3}{4}\cdot\frac{4}{5};\qquad 4)\ 1\frac{1}{2}\cdot 1\frac{1}{3}\cdot 1\frac{1}{4}\cdot 1\frac{1}{5};$$

$$2)\ \frac{6}{7}\cdot\frac{7}{8}\cdot\frac{8}{9}\cdot\frac{9}{10}\cdot\frac{10}{11};\qquad 5)\left(1+\frac{1}{4}\right)\cdot\left(1+\frac{1}{5}\right)\cdot\left(1+\frac{1}{6}\right)\cdot\left(1+\frac{1}{7}\right)\cdot\left(1+\frac{1}{8}\right);$$

$$3)\ \frac{1}{2}\cdot\frac{2}{3}\cdot\ldots\cdot\frac{23}{24}\cdot\frac{24}{25};\qquad 6)\left(1-\frac{1}{2}\right)\cdot\left(1-\frac{1}{3}\right)\cdot\left(1-\frac{1}{4}\right)\cdot\ldots\cdot\left(1-\frac{1}{99}\right)\cdot\left(1-\frac{1}{100}\right).$$